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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,427	11/20/2003	Takashi Tatsumi	245637US0	6969

22850 7590 03/23/2007  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

NAGUBANDI, LALITHA

ART UNIT PAPER NUMBER

1621

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/23/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/23/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/716,427

Applicant(s)

TATSUMI ET AL.

Examiner

Lalitha Nagubandi

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on elc. 1/3/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Detailed Office Action***

Claims 1- 15 are pending in this application. Claims 8-15 are considered for examination in this office action.

***Election/Restriction***

Applicant's election of Group III (Claims 8-15), drawn to a process for producing mesoporous silica, in the reply filed on January 3<sup>rd</sup> 2007, with traverse is acknowledged.

The traversal is on the ground(s) that applicants believe that “ the claims of Group III depend directly from the claims of Group II, which in turn depend directly from the claims of Group I”.

This is not found persuasive because, the claims of Group III are classified in class 427, and subclass 452, which is different from those of Group(s) II and I. The restriction requirement made in the previous office action was proper and hence the election requirement dated October 2<sup>nd</sup>, 2006 is made **FINAL**.

Claims 1-7 are withdrawn from further consideration.

***Specification***

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall et al (Chem. Commun., 1999, 201-202 pages 201 - 202).

Hall et al disclose (please see Para 2, page 201, Chem. Commun., 1999, 201-202 pages 201 – 202) template directed synthesis of mesoporous silica materials comprising, mixing (A) tetraethoxysilane (B) (3-aminopropyltriethoxysilane) and (C) a surfactant, thus anticipating the instant claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102 (e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Hall et al, (Chem. Commun., 1999, 201-202 pages 201 - 202) and in view of Brinker et al (USPatent No. 5,858,457 dt. Jan 12<sup>th</sup>, 1999).

Applicants claim a method for producing a mesoporous silica complex having mesopores uniform in size comprising mixing components (A) an anionic surfactant

(B) a silicate monomer (C) a basic silane, in water or a mixed solvent of a water-miscible organic solvent and water. The process comprises of calcining said mesoporous silica outer shell. Further, a method for producing a mesoporous silica outer shell, comprising forming said mesoporous silica outer shell based on the structure of the mesoporous silica complex obtained as a template, wherein the mesoporous silica complex is washed with an acidic aqueous solution, a water-miscible organic solvent, or an aqueous solution to remove the anionic surfactant.

#### **Determination of the scope and content of prior art**

Hall et al teach a template-directed synthesis of bi-functionalized silica mesophases (please see Para 2, page 201 and para 4 of page 202, Chem. Commun., 1999, 201-202 pages 201 – 202).

Brinker et al teach the process to form mesostructured films where anionic surfactants can be used in the process (please see column 6, lines 1-5, USPatent No. 5,858,457, Please read the whole document).

#### **Ascertainment of the difference between the prior art and claims**

The difference between the prior art disclosed in the reference and the instant claims is that Hall et al teach the use of surfactants, but is silent about the specificities of the type of surfactants, which can be used for the process. However, Brinker et al teach

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the specific anionic surfactant and the cationic surfactants to be used in the process of the formation of the mesostructured films.

### **Finding of prima facie obviousness-rationale and motivation**

Accordingly, one of ordinary skill in the art would be motivated to prepare the instant products by changing the nature of the surfactants during the process of making the desired mesoporous silica complex.

Therefore the subject matter as a whole would have been obvious to one of ordinary skill in the art of zeolite chemistry and one would have been motivated to combine and modify the teachings cited above at the time of invention.

An ordinary artisan would have had a reasonable expectation of success to use different surfactants ranging from cationic, nonionic to anionic, coupled with basic silane and the silicate monomer in order to make the mesoporous silica complex and to obtain the mesoporous silica through calcination as taught by Brinker, hence it is a prima facie obvious.

### ***Conclusion***

No claims are allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lalitha Nagubandi whose telephone number is 571 272 7996.

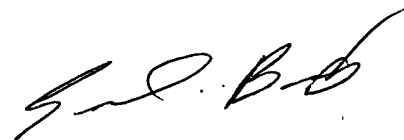
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The examiner can normally be reached on 6.30am to 3.30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Thurman K. Page** can be reached on 571 272 0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lalitha Nagubandi  
Patent Examiner  
Technology Center 1600

March 16<sup>th</sup>, 2007.



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